874
Oven Sample
Processor

Automatic thermal
sample preparation
for Karl Fischer titration

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Automated thermal sample preparation for Karl Fischer titration

Principle of the oven method

The oven method is suitable for samples that release their water only at high temperatures, are difficult to dissolve or react with the KF reagent.

Sample preparation is very simple. The substance to be analyzed is weighed out into a sample vial, which is hermetically sealed with a septum and placed on the rack. The sample vial is heated in an oven to elease the water from the sample. A double hollow needle pierces the septum and a stream of carrier gas transports the moisture to the titration cell for subsequent determination.

The advantage of the oven method is that the sample itself does not get in contact with the KF reagent. This prevents contamination of the oven and the titration cell, which means that there is no risk of carryover or memory effects. Possible contamination is confined to the sample container alone.

Dry carrier gas

Carrier gas with the released moisture

Hollow Outlet needle

Hollow inlet needle

Septum closure
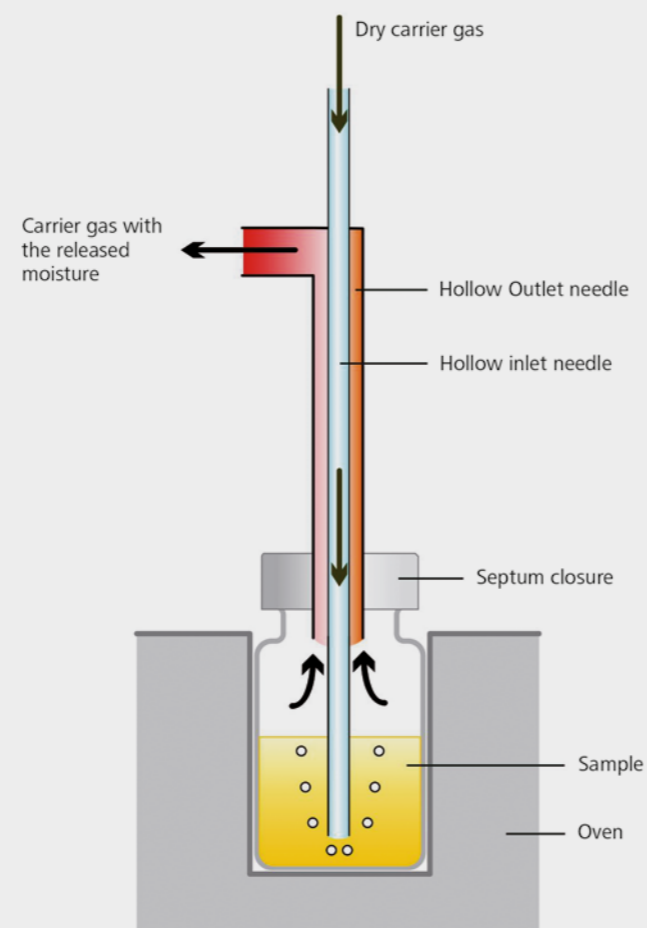
Sample

Oven

High flexibility

You want to work with your own sample vessels? No problem at all. The oven and rack can be adjusted to fit your sample vessels.

Optimum heating temperature with temperature gradient

The optimum heating temperature is always a question with unknown samples. The temperature should always be high enough to ensure that the water enters the titration cell as quickly as possible. However, the sample must not decompose, because decomposition products may falsify the results. With the 874 Oven Sample Processor you can record the heating curve of an unknown sample. This curve can be used to determine the optimum temperature for the analysis.
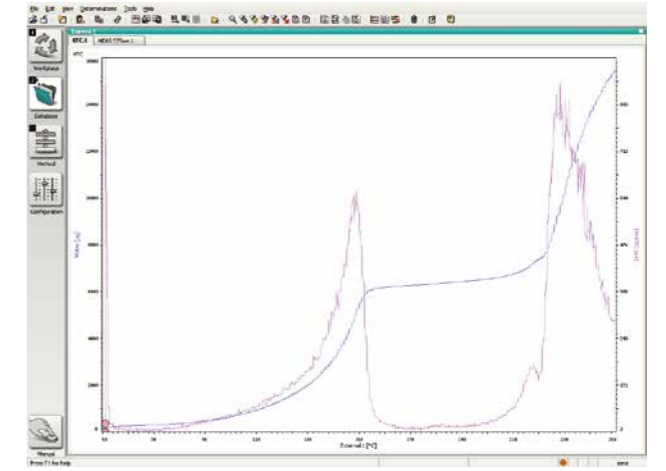
Example of a heating curve

Automatic reagent change – safe handling of toxic reagents

The 874 Oven Sample Processor has three MSB ports. In addition to the stirrer, Dosinos and Dosing Units can be connected to the Sample Processor. This allows spent reagent to be removed automatically from the titration cell and the cell to be filled with fresh titration medium. Because the titration cell is not opened, moisture absorption from the atmosphere is reliably prevented. This means that the conditioning time of the fresh reagent is very short and you save valuable time and also avoid direct contact with toxic reagents. Reagent change can be triggered by limits related to the number of analyses, the age of the reagent, its water capacity or the drift value.

Coulometry or Volumetry?

Once the moisture from the sample has been transferred to the titration cell, the water content is determined. This can be done by coulometric or volumetric Karl Fischer depending on the amount of moisture in the sample.

Coulometric titration – 874 Oven Sample Processor 851 Titrando

Volumetric titration – 874 Oven Sample Processor with 852 Titrando

ORDERING INFORMATION

Instrument	
2.874.0120	874 Oven Sample Processor for 6-mL sample vessels
2.874.0130	874 Oven Sample Processor for special sample vessels
Optional accessories	
2.851.0110	851 Titrando
2.852.0150	852 Titrando
2.890.0310	890 Titrando with OMNIS
2.901.0010	901 Titrando
6.1448.050	Aluminum septum seal, 1000 units
6.2419.000	Sample vessel 6 mL, 1000 units

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